

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



534040

(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/097530 A1

- (51) International Patent Classification⁷: **G03G 9/093**, 9/087, C09D 167/04, C12P 7/62, C12N 11/00
- (74) Agents: **OKABE, Masao** et al.; No. 602, Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo, 1000005 (JP).
- (21) International Application Number: **PCT/JP2004/006349**
- (22) International Filing Date: **30 April 2004 (30.04.2004)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
2003-127508 **2 May 2003 (02.05.2003)** **JP**
- (71) Applicant (for all designated States except US): **CANON KABUSHIKI KAISHA [JP/JP]**; 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **YANO, Tetsuya [JP/JP]**; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP). **NOMOTO, Tsuyoshi [JP/JP]**; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP). **KOZAKI, Shinya [JP/JP]**; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP). **IMAMURA, Takeshi [JP/JP]**; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP). **HONMA, Tsutomu [JP/JP]**; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo, 1468501 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): **ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**
- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **STRUCTURE AND METHOD FOR PRODUCING STRUCTURE, TONER CONTAINING STRUCTURE, IMAGE FORMING METHOD AND DEVICE USING TONER**

(57) Abstract: A structure, comprising a base material, coated with polymer which can be compatible with reduced load against environment and living organisms and various functionalities is provided. The base material is covered with polyhydroxyalkanoate (PHA). The invention also relates to a method for production of the structure comprising immobilizing the enzyme which synthesize PHA on the surface of the base material, biosynthesizing the PHA and coating the base material. The invention also provides toner containing such the structure and production thereof. Further, the invention relates to an image forming method comprising forming the image by providing such toner to the medium to be recorded.

WO 2004/097530 A1